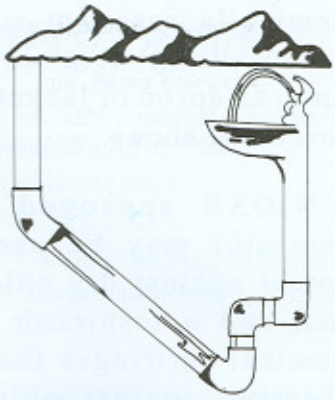
Water Lines



Water Lines is the resource newsletter and calendar of the Nevada Drinking Water and Wastewater Training Coalition.

Volume 33 Summer 2009 Issue

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Focus on Drinking Water

Water Lines is funded by the Nevada Division of Environmental Protection

Editor, Brent Farr, P.E.

Editor, and Production, Joe Beard Jr.

Featured Water Quality Laboratory

By Chet Auckly, NTC Board

It may be a little known fact to some local residents, but the water they drink is safe thanks in no small part to one of the world's most sophisticated municipal water quality laboratory complexes – right here in Southern Nevada.

Opened in January 2007, the Water Quality Laboratory and Applied Research & Development Center at the River Mountains Water Treatment Facility (RMWTF) in Henderson explores ways to enhance the Las Vegas Valley's water system. In the process, it has emerged as a leader in testing, and research and development of water treatment.

Built as a result of a Southern Nevada Water Authority (SNWA) study commissioned in 2001, the 50,000-square foot facility includes specialized functional areas for molecular biology, virology, parasitology, inorganic chemistry and analysis, organic chemistry and analysis, control systems, a 10 gallons-per-minute pilot plant, and classroom and training space.

In collaboration with leading industry experts from Black & Veatch's Global Water Technology Group, the SNWA developed the facility to serve as a cornerstone for the future of Southern Nevada's water quality, water treatment technology and applied research.

Each year, the lab performs more than 500,000 analyses and processes more than 35,000 samples from source waters, treatment plants and distribution systems. Technology at the facility enables staff members to pinpoint trace amounts of virtually all known regulated and unregulated contaminants, whether chemical or biological.

Scientists at the facility have undertaken groundbreaking research, from studying the toxicological relevance of endocrine disruptors and pharmaceuticals, to how perchlorate formation in aging Sodium Hypochlorite solutions may change the way utilities store and use free chlorine for disinfection.

The Water Quality Laboratory is headed by Laboratory Services Manager Linda Blish, while Manager of Research David Rexing oversees the Research & Development Center. Rexing also is involved with the American Water Works Association's (AWWA) Research Foundation and serves as vice-chairman of the AWWA Water Utility Council.

Safety Zone: Safe Use of Chlorine

By Stevan Palmer, RCAC

Chlorine and chlorine compounds are used extensively in the water and wastewater utility industries.

Chlorine is a highly effective disinfectant and oxidizing agent, and is relatively inexpensive to store, handle, and deliver. But there are important safety considerations when using chlorine and chlorine compounds.

Chlorine comes in three main forms:
· Chlorine gas
· Sodium hypochlorite (bleach)
· Calcium hypochlorite (high test hypochlorite, or HTH)

Chlorine gas is a greenish, corrosive, non-flammable gas that is denser than air. It is highly toxic, and irritating to skin, eyes, nose and mucus membranes. Chlorine gas comes in pressurized cylinders, typically with a 150 lbs or one ton capacity.

The compressed gas assumes a liquid form in the bottom of the cylinder, with gas on top. Storage and transport procedures are similar for chlorine as for all compressed gasses.

150 lb cylinders should never be lifted by the hood. All cylinders should be chained or secured against movement when not being transported. Self contained breathing apparatus (SCBA) must be used when changing cylinders, or when responding to leaks. At least two people should be involved when changing cylinders or making repairs.

Liquid chlorine, also known as Sodium Hypochlorite or bleach, is a greenish-yellow liquid. Like chlorine gas, it is corrosive, toxic, and irritating to skin, eyes, nose and mucus membranes.

Dry Chlorine, also know as Calcium Hypochlorite, or High Test Hypochlorite, come in a powdered, granular or tablet form. Like the other two forms, it is corrosive, toxic, and irritating to skin, eyes, nose and mucus membranes.

All forms of chlorine are strong oxidizers. Care should be taken to store these chemicals in marked containers in dry, well ventilated, areas that are protected from heat and well away from organic chemicals and petroleum products.

Exposing combustible materials to chlorine compounds can result in fires. Eye wash stations and emergency showers should be available in all areas where chlorine is used.

Personal protective equipment to be used when handling chlorine and chlorine compounds include full face shields or well ventilated goggles, chemically resistant rubber gloves, long sleeves and pants, an apron or jacket, and closed toe shoes.

A NIOSH approved dust respirator may be used to protect against dry chlorine dust, and a respirator with chemical cartridges that are effective against chlorine fumes may be used when working with chlorine bleach.

Never use a chemical cartridge respirator when handling chlorine gas, as the gas may overpower the cartridges ability to neutralize vapors.

In cases of skin exposure, wash the effected area with soap and water. If eyes are exposed, irrigate with cold water for 15 minutes and contact a physician immediately.

In inhalation cases, remove the victim from the contaminated area. Keep the victim warm and in a reclined position, with head and shoulders elevated. Administer oxygen, and perform artificial respiration if necessary. Contact a physician immediately.

Consult your company safety policies, safety manuals and Material Safety Data Sheets (MSDS) for more information on using chlorine safely.

The Spigot Q & A: Focus on Safety Basics

Q 1. A self-contained breathing apparatus should be located _____ of the chlorine room.

Q 2. When mixing acid and water, always add the _____to the _____.

Q 3. OSHA's Lock Out Tag Out standard should be used when working on _____ equipment.

Q 4. A health effect that happens from low exposure over a long period of time is called a _____ effect.

Q 5. The threshhold odor for chlorine gass is approximately one_____.

Q 6. The excavated material from a trench is called _____.

Q 7. Corrosive water can leach this metal from plumbing into drinking water: _____.

Q 8. Trenches that are 4 foot deep or deeper and occupied must have exits every _____ feet.

Q 9. The primary health risk of trihalomethanes is an increased risk of _____.

Q 10. _____ is used to prevent cave-ins when trenching.

Q 11. An important aspect of every safety program is _____.

Q 12. An area with limited ventilation and/or a restricted entrance and exit is a _____ space.

Q 13. A good place to find information about hazardous substances is the _____.

Q 14. _____ should not be worn when working with rotating equipment.

The Spigot is prepared by Crystel Montecinos, Environmental Consultant for Tigren, Inc. You can contact her at 775/240-1396

Answers: 1. Outside 2. Acid, Water 3. Electrical 4. Chronic 5. ppm 6. Spoil 7. Lead 8. Twenty five 9. Cancer 10. Shoring 11. Training 12. Confined 13. Material Safety Data Sheet (MSDS) 14. Gloves.

Regulatory Note: New Certified Drinking Water Operator's Website

By Jennifer Carr, NDEP

The newly-created website for the Nevada Certified Drinking Water Operator's Forum is up and running!

Certified Drinking Water Operators are encouraged to follow the link http://ndep.nv.gov/dwo/index.html

Call for Nominations for NTC Board Members

Please nominate the person named below (may be yourself) to serve on the board of the Nevada Training Coalition.

Name / Title:_____
Organization:_____
Address:_____
Telephone:_____
Email:_____
Signature:_____

Nominations close June 11, 2009 and elections will be at the NTC meeting on June 12th, 2009.
Please direct to: Bob Foerster, NVRWA, 363 Fairview Drive, Carson City, NV 89701 or fax to 775-841-4243.

Regulatory Update: The Ground Water Rule

By Kerry Schmelzer, NDEP

This article offers a brief overview of the Ground Water Rule (GWR), which was promulgated by EPA in December 2006.

The latter part of this article points out a few actions you may want to start thinking about if the GWR applies to your public drinking water system.

Under EPA guidelines, the GWR takes effect on December 1, 2009, and applies to all public water systems (hereafter referred to as "systems") that have any of the following characteristics:

· Systems that rely entirely on one or more ground water sources,

· Systems that are regulated consecutive systems receiving ground water, or

· Systems that mix surface and ground water, where ground water is added directly to the distribution system and delivered to consumers without treatment equivalent to the treatment provided for surface water.

The Ground Water Rule consists of four main elements:

1. Sanitary Surveys. The Bureau of Safe Drinking Water (BSDW) must conduct sanitary surveys of all ground water systems; a minimum of every three years for community systems and five years for non-community systems. This is not a change from current practice in Nevada.

2. Source Water Monitoring. Systems that do not provide 4-log treatment of viruses for each of their ground water sources must conduct source water monitoring for E. coli. (See insert). Monitoring is triggered when a routine sample collected under the Total Coliform Rule is found to be positive for total coliform (TC+).

3. Compliance Monitoring. Systems may avoid source water monitoring by demonstrating a 4-log treatment for viruses at each of their ground water sources and by conducting daily chlorine residual monitoring.

4. Corrective Actions. Systems that have significant deficiencies on a sanitary survey or detect fecal contamination (E. coli) in any of their sources must perform one or more of the following corrective actions:

· Correct all significant deficiencies.

· Provide an alternative source of water.

· Eliminate the source of contamination.

· Provide treatment that reliably achieves 4-log virus inactivation/ removal.

Implementation is just 6 months away … it might be a good idea to start thinking about the following points:

Notify BSDW by December 1, 2009. In order to avoid the source water monitoring requirement, it will be necessary to demonstrate that your system provides sufficient disinfection of each ground water source to ensure 4-log treatment of viruses. **If you intend to make this demonstration, you will need to notify BSDW by December 1, 2009 and begin compliance monitoring.** Engineering calculations must be submitted, at the time of notification, so that the agency can evaluate the level of treatment.

These calculations would need to demonstrate that the ground water is in contact with a sufficient concentration of disinfectant for a long enough period of time to inactivate 4-logs of virus.

Compliance monitoring is required of systems that practice 4-log virus treatment at each of their sources. When utilizing chlorine for treatment, chlorine residual monitoring will be required. In systems serving 3,300 or fewer customers, this will consist of a daily chlorine residual measurement at or prior to the first customer.

The minimum residual that must be maintained at this monitoring location will be determined from the engineering calculations discussed previously. The number of monitoring locations will depend on the number of sources and whether or not flows are combined before reaching a service connection.

If your system provides disinfection of all ground water sources, you may want to start thinking about how and where these daily residual measurements will be taken.

Systems serving more than 3,300 persons will be required to measure chlorine residual continuously and record the lowest daily reading. This may entail the purchase and installation of equipment if your system is not currently using continuous chlorine monitors.

Source Water Monitoring. Systems that are not providing 4-log treatment of viruses at all of their sources or conducting compliance monitoring are subject to trig-

Regulatory Update: The Ground Water Rule

(Continued from page 4)

gered source water monitoring requirements.

Each time a routine Total Coliform Rule (TCR) sample is positive for total coliform (TC+), a sample to be analyzed for E. coli must be taken within 24 hours. The sample must be collected at the source or sources that were contributing water at the time and in the area where the TC+ was taken.

Source samples must be taken prior to any treatment. Systems must identify a sampling point for each ground water source. Smooth-nosed sampling taps (no threads on spigot) may need to be installed if not already present.

Systems that add chlorine in the well bore, or near enough to the wellhead that chlorine could backflow into the well, will need to develop a procedure for purging all chlorine residual prior to taking a triggered source water sample.

Future articles will provide additional detail on each of the four major requirements of the GWR. If you want to get a head start, EPA's GWR web site is a valuable source of information, including a Quick Reference Guide, fact sheets, and other guidance materials: http://www.epa.gov/safewater/disinfection/gwr/index.html

What is Triggered Monitoring?

Each time a routine Total Coliform Rule (TCR) sample is found to be positive for total coliform bacteria; it "triggers" the requirement that a ground water system must collect a sample from each ground water source in use at the time the positive TCR sample was taken. The system must then have the sample analyzed for a fecal indicator (FI) which is, currently in Nevada, E. coli.

This triggered source sample must be taken within 24 hours of the time the system was notified of the positive routine TCR sample. The source sample must be collected at the location prior to any treatment so that it will represent the quality of the raw ground water.

Systems serving 1,000 or fewer customers may use a source sample to meet the GWR triggered monitoring requirement, and also to serve as one of the four repeat samples required under the TCR.

Larger systems with multiple sources and distribution system pressure zones may develop a triggered source water monitoring plan. This plan would identify the source or sources that are tied to each TCR sampling site instead of having to sample all of their wells. The Bureau of Safe Drinking Water (BSDW) may require that a representative triggered monitoring plan be submitted for agency review and approval.

What is Assessment Source Water Monitoring?

BSDW has the authority under the GWR to require assessment source water monitoring, if the agency believes that triggered monitoring is not likely to accurately characterize the microbial quality of a ground water source. Assessment source water monitoring could consist of monthly source samples for one year.

What to do if a source sample is E. coli positive?

A system that is notified of an E. coli positive source sample will be required to provide public notice within 24 hours (see public notification templates at)

www.epa.gov/ogwdw/publicnotification/compliancehelp_templates.html

The system may also be required to take five additional samples from the same source within 24 hours and have these analyzed for E. coli, or the system may be directed by BSDW to perform one or more of the following corrective actions:

· Identify and remove the source of contamination

· Provide an alternative water source

· Correct any significant deficiencies that could be causing the contamination

· Provide 4 log virus treatment and conduct compliance monitoring.

If a system is required to take five additional source samples and if any of these samples are positive for E. coli, the system must perform one or more of the corrective actions listed.

If completion of corrective actions will require a significant period of time, BSDW may impose interim public health protection measures, such as temporary disinfection of the contaminated source.

Reprinted in part from the Idaho Drinking Water Newsletter Number 49 and 50

Wastewater Operators Certified

These wastewater operators passed certification exams for treatment and collection grades 1, 2 3 and 4. Congratulations to all !

Treatment grades 1, 2, 3 and 4

Grade 1: Christopher Bland, Boughter, Thomas Carrigan Jr., John DuFresne, Thomas McIntosh, David Owens, Nate Seltenreich, Roger Sutton

Grade 2: Keith Alosi, Michael Balthzor, Thomas Barnes, Brian Carlson, Michael Christopher, Daniel Combs, Lyman Ellis, Chris Kuhlemeier, Richard Lewis, Leslie Lorber, David McBride, John Meirs

Grade 3: Lawrence Haupt

Grade 4: Gregory Gannon, Adrian Johnson

Collection grade 1

Grade 1: Cynthia Datwyler, David Owens, Joe Perkins

Wastewater Laboratory Analyst grades 3 and 4

Grade 3: Elizabeth Bugante

Grade 4: Jennifer Pereos

Industrial Waste Inspector grades 1 and 2

Grade 1: Floyd Johnson, Lloyd Schafer

Grade 2: Brynda Gutierrez, Mark Irwin

The NWEA Certification Board is pleased to announce that computerized exams are now being offered! Pencil and paper exams will continue to be offered quarterly for the same fees.

New Water Operators Certified

These water operators passed water certification exams for distribution and treatment grades 1, 2, 3 and 4. Congratulations to all !

Distribution grades 1, 2 and 3

D-1: David Albertson, Terry Baker, Jeff Cady, John Day, Allen Dodson, Albert Fischer, Justin Gerard, Steven Hubele, Brent Johnson, Michael Johnson, Kris Kaltenbacher, Jim Kerr, Louis Lani, Leroy Marx, Drew Morris, Roland Nordmeyer, Logan Randolph, Jerad Reid, Lora Richards, Gregg Ruiz, Scott Schunter, Carolyn Scnell, Isaac Steed, Amanda Steensen, Thomas Tarulli, Joshua Thmason, Robert Trigg, Barry Williams, Kathleen Williams

D-2: Christy Broadway, Terry Capron, Michael Garden, Travis Hartman, Kenneth Howard, Nathan Johnson, Franklin Little, Jennifer Morgan, Michael Nevin, Bruno Nolte, Tahnee Praiswater, Lisa Simcoe, Marci Westlake, Frederick Willis

D-3: Charles Atkinson, Thomas Carrigan, Christopher Carter, Elise Hoover, James Imperial, Jeremy Keele, Patrick McKay, Eric Rasmussen, Thomas Vehe, Brian Wight

Treatment grades 1, 2, 3 and 4

T-1: Michael Anderson, Nicholas Atiemo, Joseph Brown, Jason Caughron, Aaron Collier, Jamie Doschadis, Victor Duarte, John Fassman, Steven Gibbs, Duane Johnson, Josh Joyner, Louis Lani, Joe Lopez, Robert Mayers, William Pace, Richard Ray, Kevin Retterath, Lora Richards, Adam Siri, James Souba, Amanda Steensen, Mike Thicke, Aaron Underhill, Brian Watkins, Ruth Watson, John Wigglesworth

T-2: Kevin Agrella, Randen Buckles, Mike Crow, John DuFresne, James Estes, Holly Flores, Brian Gibbs, Larry Grant, Kelly Hale, Jason Hudak, Mitchell Kidd, Jennifer Morgan, Jack Orr, Daniel Park, Dennis Pruitt, Bill Robbins, Jacy Warner, Michael Witt

T-3: James Ashby, Thomas Gardner, Brandon Mathiesen, Greg Melandow, Eric Mothershead

T-4: Darren Kitzmiller, Wayne Vanassche

Training Calendar for 2009

June 9-11 - Reno - Distribution and Treatment Operator Certification Review Workshops conducted by AWWA. Contact Jennifer Bauza at 909/481-4688 x 2113 or http://ca-nv-awwa.org/CA-NV/calendar for more information.

June 12 - Various Locations - UNR Video conference. Topic: Pump Hydraulics. Info: Crystel Montecinos at 775/240-1396.

June 26 - Various Locations - UNR Video conference. Topic: Pressure Reducing Valves. Info: Crystel Montecinos at 775/240-1396.

August 7 - Various Locations - UNR Video conference. Topic: Shut-Off Type Valves. Info: Crystel Montecinos at 775/240-1396.

August 21 - Various Locations - UNR Video conference. Topic: Water Treatment Grades 3 and 4. Info: Crystel Montecinos at 775/240-1396.

September 11 - Various Locations - UNR Video conference. Topic: Small System Management. Info: Crystel Montecinos at 775/240-1396.

September 18 - Various Locations - UNR Video conference. Topic: Backflow and Cross Connection Prevention. Info: Crystel Montecinos at 775/240-1396.

October 16 - Various Locations - UNR Video conference. Topic: Pumping Efficiency. Info: Crystel Montecinos at 775/240-1396.

November 13 - Various Locations - UNR Video conference. Topic: Hot Tapping Pipes. Info: Crystel Montecinos at 775/240-1396.

December 11 - Various Locations - UNR Video conference. Topic: Regulations Update. Info: Crystel Montecinos at 775/240-1396.

Ongoing - Online - Various Training Topics offered by RCAC. For more information, contact Stevan Palmer at 775/750-1884.

Ongoing - On Site - Various Training Topics offered by NvRWA. For more information, contact Bob Foerster at 775/841-4222.

Editor's Note:

Starting with the next issue, Water Lines will be edited and produced by NDEP Office of Financial Assistance. Questions or Suggestions: Contact Adele Basham at 775-687-9488 or email abasham@ndep.nv.gov

Useful Training Contacts

University of Nevada, Reno
CABNR & Cooperative Extension

UNR videoconference classes for water system operators and managers are available in most communities. To request a workshop in your area, call Crystel Montecinos at 775/240-1396 or e-mail: xtelle@aol.com.

Community College of Southern Nevada
Wastewater & Water Technology Program

Info: LeAnna Risso, 702/434-6600 ext. 6418.

WWET Training in Clark County

Training for water treatment plant and distribution system operators, wastewater treatment plant and collection system operators, and other professionals working within these fields. Info: Jeff Butler 702/258-3296; see *www.wwet.org* for a current training calendar.

State of Nevada Water Certification Exams

All exams will be proctored on the date listed. Applications and fees are due to the state (Steve Brockway) 45 days before exam dates. A proctor will contact examinees to schedule testing. Contact Ron Penrose at 775/834-8017 for information about 2009 exam dates.

Water exams are scheduled in the first three calendar quarters of each year at locations throughout the state. Info: 775/687-9527 or http://ndep.nv.gov/bsdw/cert_home.htm. For additional info on wastewater: 775/465-2045 or *www.nvwea.org*.

Nevada Rural Water Association

Please send requests for training to nvrwa.org, or contact staff directly at 775/841-4222.

This symbol designates Nevada Division of Environmental Protection pre-approved training for certification renewal contact hours.

Change of Address Requested

Operator Certification Administrators have noted that a large number of certificates are being returned to the State, because Operators have not updated their mailing addresses after moving.

Operators are asked to promptly notify the State when they have changed addresses.

Please contact Steve Brockway at 775-687-9527 or sbrockway@ndep.nv.gov.

Nevada Drinking Water and Wastewater Training Coalition

American Water Works Association California/Nevada Section
www.ca-nv-awwa.org
909/291-2101

Indian Health Service
Dominic Wolf, 775/784-5327

NDEP
http://ndep.nv.gov
Adele Basham, DWSRF, 775/687-9488
Michelle Stamates, AB 198 Water Grant Program, 775/687-9331
My-Linh Nguyen, Wellhead Protection, 775/687-9422

Nevada Rural Water Association
www.nvrwa.org
775/841-4222
Bob Foerster, Executive Director
John Allred
Curtis Duff
Teresa Taylor
Andy Andersen
Dan Tarnowski
David Willard

Public Utilities Commission of Nevada
www.puc.state.nv.us
Mark Clarkson, P.E., Water Engineer, 775/684-6132
Leslie Tench, Senior Engineering Analyst, 775/684-6140

Bureau of Safe Drinking Water
http://ndep.nv.gov/bsdw/index.htm
775/687-9520
Jim Balderson, SWAP, 687-9517
Steve Brockway, CEU approval, 687-9527
Patty Lechler, 687-9529
Bert Bellows, arsenic, 687-9525

Nevada Water Environment Association
www.nvwea.org
775/465-2045
Starlin Jones, 775/861-4104
Eric Leveque, 702/792-3711

Rural Community Assistance Corporation
www.rcac.org
775/323-8882
Stevan Palmer, 775/750-1844

U.S. Environmental Protection Agency, Region 9
www.epa.gov/region09
Sara Jacobs, 415/972-3564

USDA Rural Development
www.usda.gov/rus/water/index.htm
Cheryl Couch, 775/887-1222, ext. 22
Kay Vernatter, 775/887-1222 ext. 28

University of Nevada, Reno Dept. of Civil Engineering
Dean Adams, 775/784-1474

Tigren, Inc.
Crystel Montecinos, 775/240-1396

UNR Colleges of Natural Resources and Environmental Science, and UNR Cooperative Extension
www.unce.unr.edu/swp
Mark Walker, 775/784-1938

NDEP Board for Financing Water Projects
http://ndep.nv.gov/bffwp/index.htm

Water/Wastewater Education and Training Consortium of Southern Nevada — WWET
www.wwet.org
Jeff Butler, 702/258-3296

Farr West Engineering
Brent Farr, P.E. 775/851-4788

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